

WHAT IS CLAIMED IS:

1. A method for transmitting audio information, comprising:
 - synthesizing a carrier signal and a side band signal;
 - encoding the side band signal with the audio information; and
 - transmitting the carrier signal and encoded side band signal in a focused hypersonic beam.
2. The method of claim 1, further comprising:
 - generating a plurality of signals based on the encoded side band signal and the carrier signal;
 - adjusting phase relationships of the plurality of signals to form the focused hypersonic beam; and
 - generating hypersonic wavelets, each of the wavelets generated based on one of the signals.
3. The method of claim 1, further comprising:
 - selecting one or more carrier signals;
 - encoding one side band signal with unique audio information for each of the carrier signals; and
 - transmitting the carrier signals and encoded side band signals in one or more focused hypersonic beams, each of the hypersonic beams aimed at a different direction than other one of the hypersonic beams.
4. A computer readable medium or a modulated signal being encoded to perform the method of claim 1 in conjunction with a hypersonic transducer.
5. A method for forming a hypersonic transducer, comprising:
 - disposing a plurality of ferroelectric/piezoelectric material islands over a first surface of a substrate, the ferroelectric/piezoelectric material islands having a top surface and a bottom surface;
 - disposing a plurality of first electrodes in contact with the bottom surface of the ferroelectric/piezoelectric material islands and the first surface of the substrate;
 - disposing a plurality of second electrodes over the top surface of the ferroelectric/piezoelectric material islands;
 - disposing electronic components on a second surface of the substrate; and

connecting the first and second electrodes to the electronic components using wiring patterns formed by printed circuit or wire bonding techniques, wherein the electronic components are for driving the first and second electrodes to form a focused hypersonic beam.

6. A method for forming a hypersonic transducer, comprising: /

disposing a plurality of adhesive standoffs on a first surface of a substrate;

disposing a thick film having a first electrode bonded to a top surface and a second electrode bonded to a bottom surface of the thick film on the adhesive standoffs over the first surface of the substrate;

disposing electronic components on a second surface of the substrate for driving the first and second electrodes to generate a focused hypersonic beam.

7. The method of claim 6, further comprising:

forming the adhesive standoffs to have closed perimeters;

forming the second electrodes into a plurality of unconnected transducer element electrodes, each of the transducer element electrodes disposed over a corresponding adhesive standoff enclosing a space between the second electrodes, the first surface of the substrate and the adhesive standoffs.

8. The method of claim 7, further comprising:

forming a hole in the substrate forming a path between the space and a space adjacent to the second surface of the substrate.

9. The method of claim 8, further comprising:

setting a pressure of a gas in the space through the hole to a predetermined pressure; and

filling the hole to maintain the pressure in the space.

10. The method of claim 7, further comprising:

filling the space with a foam material.

11. A hypersonic transducer that transmits one or more focused hypersonic beams, / comprising:

a substrate having a first surface and a second surface;

a plurality of ferroelectric/piezoelectric islands formed over the first surface of the substrate;

a plurality of first electrodes and a plurality of second electrodes, the first electrodes formed on a top surface of the ferroelectric/piezoelectric islands and the second electrodes formed on a bottom surface of the ferroelectric/piezoelectric islands and the second surface of the substrate;

a plurality of components formed on the second surface of the substrate for driving the first and second electrodes to transmit the one or more focused hypersonic beams.

12. The hypersonic transducer of claim 11, further comprising:

a plurality of wire patterns formed on the first and second surfaces of the substrate that interconnects the first and second electrodes with the components; and

a plurality of wires connecting the first electrodes to wiring patterns formed on the first surface of the substrate.

13. A hypersonic transducer that forms a focused hypersonic beam, comprising:

a substrate having a first surface and a second surface;

a plurality of adhesive standoffs formed over the first surface of the substrate;

a thick film having a first electrode bonded to a bottom surface of the thick film, the first electrode disposed on the adhesive standoffs;

a second electrode disposed in a position opposing the first electrode; and

a plurality of electric components disposed on the second surface of the substrate, the electric components connected to the first and second electrodes for driving the first and second electrodes to generate a focused hypersonic beam.

14. The hypersonic transducer of claim 13, wherein:

the thick film is formed from a ferroelectric/piezoelectric material;

the second electrode is bonded to a top surface of the thick film; and

the first electrode comprising a plurality of transducer element electrodes not directly connected to each other, each of the transducer element electrodes corresponding to one of the standoffs.

15. The hypersonic transducer of claim 14, wherein:

the adhesive standoffs are formed to have closed perimeters, the standoffs, the transducer element electrodes and the first surface of the substrate enclosing a space,

the space being one of filled with a foam, substantially emptied of gas by setting a pressure using a hole formed in the substrate and connected to a space adjacent to the second surface of the substrate, the thick film and the first and second electrodes bonded to the thick film having one of concavities extending toward the second surface of the substrate and convexities extending away from the second surface of the substrate.

16. The hypersonic transducer of claim 14, further comprising:

a second thick film bonded to the second electrode; and

a third electrode bonded to a top surface of the second thick film, wherein:

the third electrode comprising a plurality of second transducer element

electrodes, each of the second transducer element electrodes opposes one of the

transducer element electrodes that is bonded to the bottom surface of the thick film,

the first and third electrodes being driven at opposite polarities for forming the focused hypersonic beams.

17. The hypersonic transducer of claim 13, wherein:

the thick film is formed of non-ferroelectric/piezoelectric materials;

the second electrode bonded to the first surface of the substrate and

comprising a plurality of transducer element electrodes not directly connected to each other, the first and second electrodes connected to the components for transmitting the focused hypersonic beams.

18. The hypersonic transducer of claim 17, wherein:

the adhesive standoffs are formed to have closed perimeters, the standoffs, the transducer element electrodes and the first surface of the substrate enclosing a space, the space being one of filled with a foam, set to a pressure different than ambient pressure using a hold formed in the substrate and connected to an air space adjacent to the second surface of the substrate, the thick film and the first and second electrodes bonded to the thick film having concavities extending toward the space.

19. A hypersonic transducer, comprising: /

means for synthesizing a carrier signal and a side band signal encoded with audio information; and

means for transmitting the carrier signal and the side band signal in a focused hypersonic beam.

20. A hypersonic transducer, comprising: /

means for mounting a thick film having a first electrode bonded to a bottom surface of the thick film over a first surface of a substrate;

a plurality of transducer element electrodes formed on the first surface of the substrate; and

means for driving the first electrode and the transducer element electrodes for generating a focused hypersonic beam.